Message

From: Weissbart, Erich [/O=EXCHANGELABS/OU=EXCHANGE ADMINISTRATIVE GROUP (FYDIBOHF23SPDLT)/CN=RECIPIENTS/CN=E361D2F1F04641E49CA63C81A2E2F4EE-EWEISSBA]
Sent: 10/19/2017 3:50:13 PM
To: Cetin, Kenan [Kenan.Cetin@wv.gov]
Subject: RE: UCC Institute - Pore Water Confirmation Sampling Approach

You are making me laugh again, which is always good☺

Erich Weissbart, P.G.
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From: Cetin, Kenan [mailto:Kenan.Cetin@wv.gov]
Sent: Thursday, October 19, 2017 11:26 AM
To: Weissbart, Erich <Weissbart.Erich@epa.gov>
Subject: RE: UCC Institute - Pore Water Confirmation Sampling Approach

Thank you, Erich. The best professional compliment I received in while. I will cherish it!

From: Weissbart, Erich [mailto:Weissbart.Erich@epa.gov]
Sent: Thursday, October 19, 2017 6:48 AM
To: Cetin, Kenan <Kenan.Cetin@wv.gov>
Subject: RE: UCC Institute - Pore Water Confirmation Sampling Approach

You are funny; I like your personal touch.

Erich Weissbart, P.G.
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From: Cetin, Kenan [mailto:Kenan.Cetin@wv.gov]
Sent: Wednesday, October 18, 2017 10:27 AM
To: McCord, Kylie/ATL <Kylie.McCord@CH2M.com>; Weissbart, Erich <Weissbart.Erich@epa.gov>
Cc: Cibrik, Jerome (JE) <cibrikje@dow.com>; Johnson, Jeffrey/CIN <Jeffrey.Johnson@CH2M.com>; Dyke, Gary/DET <Gary.Dyke@CH2M.com>; Jason.S.McDougal_wv.gov <Jason.S.McDougal@wv.gov>; Weber, Paul/IDA <Paul.Weber@CH2M.com>
Subject: RE: UCC Institute - Pore Water Confirmation Sampling Approach

Kylie/Jerome,
I just wanted to drop a short note and tell you that I have no additional comments on your responses at this point. I much appreciated the opportunity and the arrangements to observe the pore water sampling from the boat on October 4th. I found the field personnel to be very knowledgeable, professional and helpful and the equipment/measurements

set up in a way to satisfy my initial skepticism about the success of the methodology in the actual live conditions on the river.
The crisp clear weather with blue skies also helped make things pleasant that day.
Thanks again.

Kenan Cetin, Ph.D.
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From: McCord, Kylie/ATL [mailto:Kylie.McCord@CH2M.com]
Sent: Thursday, October 05, 2017 2:40 PM
To: Cetin, Kenan <Kenan.Cetin@wv.gov>; Weissbart, Erich <Weissbart.Erich@epa.gov>
Cc: Cibrik, Jerome (JE) <cibrikje@dow.com>; Johnson, Jeffrey/CIN <Jeffrey.Johnson@CH2M.com>; Dyke, Gary/DET <Gary.Dyke@CH2M.com>; McDougal, Jason S <Jason.S.McDougal@wv.gov>; Weber, Paul/IDA <Paul.Weber@CH2M.com>
Subject: RE: UCC Institute - Pore Water Confirmation Sampling Approach

Kenan and Erich,

Attached please find the response to your email comments related to the pore water investigation work at Institute and South Charleston facilities. As we discussed on the call on September 11, 2017 to discuss these comments and the investigation approach, you both agreed that we would complete the investigation as proposed and that we would add methane analysis to the pore water at Institute. I have included a copy of the presentation for your records. The Institute pore water sampling was conducted last week and the SCF pore water sampling was initiated last week and is supposed to be finished this week. Kenan was able to observe the sampling in the field yesterday with our field crew. Please let us know if you have any further questions – we look forward to reviewing the results with you in the near future. Thanks,

Kylie

From: Cetin, Kenan [mailto:Kenan.Cetin@wv.gov]
Sent: Friday, September 01, 2017 7:35 PM
To: McCord, Kylie/ATL <Kylie.McCord@CH2M.com>; Weissbart, Erich <Weissbart.Erich@epa.gov>
Cc: Cibrik, Jerome (JE) <cibrikje@dow.com>; Johnson, Jeffrey/CIN <Jeffrey.Johnson@CH2M.com>; Dyke, Gary/DET <Gary.Dyke@CH2M.com>; McDougal, Jason S <Jason.S.McDougal@wv.gov>
Subject: RE: UCC Institute - Pore Water Confirmation Sampling Approach [EXTERNAL]

Jerome/Kylie,
The more I looked and reviewed through the pore water presentation of last week that you sent to us past Monday, the more questions seem to pop up in my mind that I feel justified to ask or bring up as comments and questions.

1) In the cross-sections, C-C' and D-D' I note that there are 4 pore water locations shown on sand and gravelly sand, with only one in sandy clay.

   A) How is the lithology at pore water sampling location determined? Is it simply a horizontal lateral projection of a lithology passed/crossed in a well toward the river until it reaches it? Or is a grab or core sample taken at the sampling location at the same time?

B) In the general application of the pore water sampling in the environmental remediation work, does the sampling for pore water involve obtaining a core or grab sediment/rock sample in the very vicinity of the pore water sample location?
C) Even if the answer to the question in B is negative, I see significant utility in knowing the exact lithology at the point of sampling; preferably in the form of a core. Would you not agree?

2) In cross-section, D-D, using the horizontal scale, one can calculate that sampling locations, INS-0315 and INS-306 are only about 70 feet and 90 feet, respectively, from the groundwater sample location INS-78B with 120,00 microgram/L of benzene nearly entirely in sand. Toward D in the cross-section, there is clearly highly contaminated GW probably with greater than 50,000 micrograms of benzene. With only sand, in between this location (INS-78B) and the pore water sampling locations down gradient, how do you explain and reconcile 1U for benzene? Straight shot laminar GW flow to nothingness!

3) I lived right by Kanawha river for 4 years in a row. The river traffic, especially coal barge traffic, is constant and relatively heavy when a barge is full and when barges meet or come side by side. Also, the river's water volume, flow energy and speed is rather significant from time to time, especially in the fall for a few months when the Summerville Dam is drawn down. In other words, it is a river where actual scour/erosion as well as settlement/deposition of sediments take place, just like in totally natural, unconfined, wild rivers. As a side note, I must add that I suspect that in some areas of Kanawha rive this sand size fill on the river bottom surface might be coal that ends up in the in the river water from various historical transportation modes and activities on or around the river. No matter what the sand material is, the question I have is this: Presuming that the sand lithology over which the porewater sampling has been confirmed (as is shown in the cross-sections), what kind of a reconciliation, if any, has been done to ensure that the sand is not simply some recent loose sand fill deposited on the river bottom surface that is completely saturated with river water at worst, or at least significantly diluted by it. In other words, is the sand native or in situ, more simple way to ask the longer question?

4) I do not know that there is enough difference between GW and river water geochemistry near the interface at river bottom in boundary waters, that you can tell dilution in pore water samples. What has been done to show that there is no dilution, or at least no significant dilution? Or could there have been any efforts that would help us in this way make the "no dilution" argument?
5) It seems to me that if the sampling location does not have enough clay/organic sediment material to kind of trap the pore water from coming into direct contact with river water so it is truly "resident" pore groundwater and not diluted by river water, then there is a risk at best of dilution and, at worse, straight river water being sucked into the sample chamber during the sampling, the risk being dependent on exact sampling conditions such as depth into the sediment, the volume of water collected, the size of the flange, successful operation of the apparatus, etc. etc. Why choose sand or sandy locations as opposed to locations with a clay rich layer present? Or am I missing part of the picture? Please elaborate.

6) Could you please provide an SOP or a QUAPP that contains details that would perhaps illuminate some of my concerns above?

7) In an extremely strictly and demonstrably controlled environment, a result of 1U might be relatively easy to believe. However, in 15-20 feet of water in the relatively murky waters of a river and in the absence of independent line of evidence (such as what Erich had requested or some others perhaps out there) the

argument for a MNA will have a significant credibility problem. Not just here at Institute but also at South Charleston facility and elsewhere. Please let us know if you can think of ways to change the pore water sampling program/protocol in ways that would ease and alleviate some of my concerns above.

Just too busy with admin stuff and not enough time to spend om more review of technical stuff.
So, I apologize for not being able to articulate and getting this e-mail to you earlier.

Kenan

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From: McCord, Kylie/ATL [mailto:Kylie.McCord@CH2M.com]
Sent: Monday, August 28, 2017 9:09 AM
To: Weissbart, Erich <Weissbart.Erich@epa.gov>; Cetin, Kenan <Kenan.Cetin@wv.gov>
Cc: Cibrik, Jerome (JE) <cibrikje@dow.com>; Johnson, Jeffrey/CIN <Jeffrey.Johnson@CH2M.com>; Dyke, Gary/DET <Gary.Dyke@CH2M.com>
Subject: UCC Institute - Pore Water Confirmation Sampling Approach

Erich and Kenan,

Attached please find the Union Carbide Corporation (UCC) Institute facility Pore Water Confirmation Sampling Approach presentation presented to the U.S. EPA (EPA) and West Virginia DEP (WVDEP) via teleconference call on August 24, 2017. A summary of the proposed sampling rationale is provided below.

In 2012 a pore water investigation was conducted in the Kanawha River adjacent to the High Purity Hydrocarbons (HPH) and Tank 1010 areas at the facility. The primary objective of this investigation was to determine if volatile organic compounds (VOCs), primarily benzene, in groundwater were discharging to the Kanawha River above respective pore water screening levels. The investigation consisted of collecting pore water samples from 16 locations adjacent to the Tank 1010 area and 8 locations adjacent to the HPH area. Locations were targeted adjacent to areas with highest onshore groundwater VOC concentrations and in locations where venting groundwater would be expected to occur within the Kanawha River.

The purpose of the proposed pore water confirmation sampling event is confirm previous pore water VOC concentrations within Tank 1010 area remain below respective pore water screening levels and to confirm prior pore water results from the HPH area. Samples are proposed to be collected at 12 of the 24 original pore water sample locations.

The 12 locations were selected based on the following:

- *Locations were targeted where VOCs were previously detected and include the one location where toluene was encountered just above the pore water screening level*
- *Locations were targeted in areas adjacent to highest on shore groundwater VOC concentrations and in areas where the highest concentrations of VOCs in pore water would be expected (based on the hydrogeological conceptual model)*

CH2M will provide EPA and WVDEP with a notification of the sampling date in advance – ***the work is tentatively scheduled to occur the week of September 18*** *but we have to confirm with the subcontractor. In addition, following completion of the pore water confirmation sampling and subsequent data validation; the results of the sampling will be conveyed to EPA and WVDEP via teleconference call and will be included in a brief technical memo to document the work.*

If you have any questions or would like to discuss further, please feel free to contact me at 678-530-4231 or Jerome Cibrik at 304-747-7788. Thanks,

Kylie

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